CLAIMS

1. A telecommunication network, preferably an ATM network, in which the downward data rate, from the network to the users, is greater than the upward data rate, from the users to the network, comprising multiplexers for establishing connections, constituting virtual channels, between users and the network, the virtual channels being grouped into virtual paths, **characterized** in that, in each multiplexer close to the user (28, 22, 25), the bandwidth allocated to each downward virtual path is variable under the control of a means (30), such as a call control means, provided upstream in a switching node (12) and in that the upward virtual paths have a fixed bandwidth.

2. A network according to claim 1, characterized in that the control means (30) is provided with a memory containing information representing the maximum bandwidth allocated downwardly to each user and representing the bandwidth allocated downwardly to the interface, or the interfaces, between the users' multiplexer and the switching node (12), this control means using these information in order to limit the bandwidth allocated to each user to its authorized maximum, and in order to limit the total bandwidth allocated to the virtual paths to a value which is at most equal to the interface, or to interfaces, bandwidth.

3. A network according to claim 1 or 2, characterized in that, in the downward direction, each virtual channel is assigned a permanent or semi permanent quality of service.

4. A network according to claim 3, characterized in that the multiplexer which is the closest to the user has, for each virtual channel of the downward direction, a buffer memory (46, 48) for ATM cells with a given priority.

5. A multiplexer constituting a node of a telecommunication network for transmitting ATM cells, this node being close to a user (24, 26, 20, 21), **characterized** in that, in this multiplexer, each downward virtual path has a plurality of virtual channels to each of which is allocated a given quality of service.

6. A multiplexer according to claim 5, characterized in that, to each virtual channel is assigned a buffer memory for the ATM cells to which is assigned a priority corresponding to the given quality of service.

7. A multiplexer according to claim 5 or 6, characterized in that the quality of service is selected among the following qualities of service: constant bit rate (CBR), variable bit rate (VBR) real time, variable bit rate non real time, and unspecified bit rate (UBR).

8. A method for controlling a telecommunication network, in which connections are realized by virtual channels grouped into virtual paths, **characterized** in that the bandwidth of the downward virtual paths are controllable dynamically from an upstream controller (30) and in that the bandwidth of each upward virtual path is fixed.

9. A method according to claim 8, characterized in that to each downward virtual channel, is assigned a given quality of service.